

DESCRIPTIONS OF SOME NEW OR NOTEWORTHY  
SHELLS IN THE AUSTRALIAN MUSEUM.

By CHARLES HEDLEY, Assistant Curator.

(Plates xl.-xlv.)

NUCULA SUPERBA, *Hedley*.

(Plate xl., figs. 1, 2).

*Nucula superba*, Hedley, Austr. Mus. Mem. iv., 1902, p. 292.

In treating of *Nucula obliqua*, Lamarck, I suggested that whereas the type of that species had a smooth inner margin to the valve and was a native of Tasmania, the name had been in error applied to a much larger shell from tropical Queensland with an inner margin microscopically crenulated and with long rake-like teeth. For this Queensland form I proposed the name of *Nucula superba*.

The size and habitat of *Nucula loringi*, Adams and Angas<sup>1</sup>, correspond to that of *N. superba*, but their phrase "margine intus simplice," is inconsistent. The crenulation of the inner margin of *N. superba* is only visible on good specimens and under a lens. But had it been overlooked by the authors, Mr. E. A. Smith would have referred to *N. loringi* in discussing the large Queensland *Nucula*<sup>2</sup>.

*Hab.*—The example figured is 19 mm. long, 15 mm. high, the single valve 4 mm. deep; it was taken by Mr. A. U. Henn in 10½ fathoms near Bow Reef off Cape Sidmouth, North Queensland. I have obtained the species in 15 fathoms off the Palm Islands, in 5-10 fathoms Hope Islands, and in 4-14 fathoms Albany Passage, Queensland.

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<sup>1</sup> Adams and Angas—Proc. Zool. Soc., 1863 (1864), p. 427; Cooke—Cambridge Natural History, Mollusca, 1895, p. 273, fig. 189A.

<sup>2</sup> Smith—Chall. Rep., Zool., xiii., 1885, p. 225.

*MYODORA PAVIMENTA, sp. nov.*

(Plate xl., fig. 3).

Shell transversely elongate, posteriorly truncate, thin, compressed. Colour uniform pearl gray, towards the umbo of the right valve are a few opaque radial streaks on a translucent ground. Right valve shallow, left slightly concave, especially round the margins. In both valves a broad posterior area is sharply defined. Ventral margin rounded, forming an obtuse angle at the intersection of the posterior ray, truncated end straight, broad, slightly oblique to the axis of the shell, forming a right angle with the posterior dorsal concave margin. Umbo acute, incurved. Anterior dorsal margin nearly straight, meeting the ventral margin in a blunt angle. Sculpture: a decided keel runs from the umbo to the postero-ventral angle. From this branch about a dozen widely spaced concentric ridges, similar to the radial, these gradually fade on the anterior side. On the left valve a furrow corresponds to the radial ridge. Length, 14; height, 8; depth of conjoined valves, 2 mm.

*Hab.*—I dredged three specimens alive in five fathoms, in Van Diemen Inlet, Gulf of Carpentaria. About five hundred and sixty miles to the north-north-west, the "Challenger" dredged an un-named species, closely related and perhaps identical with this<sup>3</sup>. In 15 fathoms, off the Palm Islands, Queensland, I dredged several dead and mostly small specimens.

*MYODORA TESSERA, sp. nov.*

(Plate xl., fig. 4).

Shell large, thin, compressed, equilateral, sub-rhomboidal. Posterior dorsal margin concave, anterior dorsal margin straight in the young, convex in the adult. Colour uniform cream buff; both valves brilliantly nacreous within. Left perfectly flat, right very shallow. Sculpture: on both valves shallow, broad, irregularly spaced, concentric corrugations, abruptly limited by a posterior ray which is bordered in the flat valve by a

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<sup>3</sup> Smith—Chall. Rep., Zool., xiii., 1885, p. 66.

furrow, in the deep valve by a ridge. Continuous over all is a microscopically grained surface. Length, 36; height, 29; depth of single valve, 5 mm.

This fine species has some resemblance to *M. striata*, Quoy and Gaimard, from New Zealand. But that is more strongly sculptured, more solid, more inflated, and shorter in proportion to height.

*Hab.*—I collected several specimens of this on the beach at Mapoon and Karumba. At Mapoon I found also another apparently new species more compressed, more delicately sculptured, and with the posterior area less differentiated.

*LORIPES ASSIMILIS, Angas.*

*Loripes assimilis*, Angas, Proc. Zool. Soc., 1867, pp. 910, 926, pl. xlv., fig. 8.

*Lucina (Loripes) jacksoniensis*, Smith, Chall. Rep., Zool., xiii., 1885, p. 185, pl. xiii., fig. 11.

Both of these were described from Sydney Harbour; the discrepancy between the accounts may be reconciled if we considered that the single specimen used by Smith was worn but that Angas had fresh material. For good specimens show fine close concentric laminae but no trace, or hardly any, of radial lines. As wear of the shell proceeds, the lamellae go, and over the whole shell appear fine close radial lines, which are not surface sculpture, but opaque substance within the shell.

Mr. C. J. Gabriel with whom I have discussed the subject and who examined the types of each in the British Museum agrees with me that these names should be united.

Angas contrasted his *L. assimilis* with *L. icterica*, Reeve. No locality for that species was given by Reeve, and Mr. Gabriel was unable to find Reeve's type in the British Museum. I suggest that the Sydney shell which Angas rightly or wrongly took for *L. icterica* was that afterwards called *Lucina ramsayi* by Smith. In that case Angas used small examples, for in my experience *L. ramsayi* exceeds *L. assimilis* in size. It is also likely that the *L. icterica*, Reeve, which Melvill and Standen<sup>4</sup> reported from Warrior Island was also *L. ramsayi*, as I found that species on Murray Island.

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<sup>4</sup> Melvill and Standen—Journ. Linn. Soc., Zool., xxvi., 1899, p. 200.

Among Australian collectors there has been a tendency to confuse *L. icterica* with *L. assimilis*. Thus Tenison Woods' remarks on *L. icterica*<sup>5</sup> seem to refer to *L. assimilis*. Smith compares *Lucina jacksoniensis* to *L. parvula*, Gould<sup>6</sup> also a Port Jackson species. But Pilsbry states<sup>7</sup> that Gould's species does not differ from *L. pisidium*, Dunker. In this case Dunker's name must take precedence.<sup>8</sup>

ROCHIEFORTIA EXCELLENS, *sp. nov.*

(Plate xl., figs. 5, 6, 7, 8).

Shell unusually large, oblong, twice as long as high, rather inflated, glossy, thin, translucent. Anterior side slightly longer. Ends rounded, dorsal margin arcuate. Ventral margin apparently straight, but on rigid examination a slight median insinuation is perceptible. Sculpture: external surface delicately concentrically striate. Under high magnification the dorsal area is finely shagreened and faint radial lines appear towards the median ventral margin. Inner ventral margin slightly finely crenulated. Inner part of pallial impression fimbriated. Length, 25; height, 13.5; depth of single valve, 4 mm.

This, one of the giants of its tribe, is readily distinguishable by size and shape.

*Hab.*—I gathered several specimens on the beach at Green Island, Queensland. I also found a single valve on the beach at Suva, Fiji.

EDENTTELLINA TYPICA, *Gatliff and Gabriel.*

*Edenttellina typica*, Gatliff and Gabriel, Proc. Roy. Soc. Vict., xxiv., (n.s.), 1911, p. 190, pl. xlv., figs. 5-6.

A new genus is here founded for a supposed bivalve with a spiral tip, in which neither cardinal nor lateral teeth, neither resilium, chondrophore, nor ligament, neither lunule nor escutcheon,

<sup>5</sup> Ten. Woods—Proc. Roy. Soc. Tasm., 1877 (1879), p. 53.

<sup>6</sup> Gould—Proc. Bost. Soc. Nat. Hist., viii., 1861, p. 36.

<sup>7</sup> Pilsbry—Cat. Mar. Moll. Jap., 1895, p. 133.

<sup>8</sup> Dunker—Malak. Blätt., vi., 1860, p. 227; *Id.*—Moll. Jap., 1861, p. 28, pl. iii., fig. 9.



neither adductor, pedal, nor pallial muscle scars are to be found. Its authors refer it to the Pelecypoda but not to any division or family. It is now suggested that no Pelecypod family would contain it, because it is the internal shell of some Tectibranch Gasteropod. *Edenttellina* should be compared with such a shell as that of *Bouvieria stellata*, Risso, figured by Vayssiere.<sup>8a</sup>

If so, it would be associated with such puzzles as *Thelidomus*, an insect larva case described by Swainson as a Gasteropod; *Allportia*, a Planarian described by Tenison Woods as a Nudi-branch; and *Amalthea covi*, a barnacle described by Sowerby as a Gasteropod.

According to figure and description, the genus *Ludovicia*<sup>9</sup> is very similar to *Edenttellina*, and, if both were really bivalves, might serve to contain the Australian species.

#### MONTROUZIERA CLATHRATA, *Souverbie*.

*Montrouziera clathrata*, Souverbie, Journ. de Conch., xi., 1863, p. 282, pl. xii., fig. 5.

The genus *Montrouziera* was founded on a single species represented by a single specimen in the Bordeaux Museum. Souverbie proposed that it should be classified next to *Cumingia*. The species does not appear to have been again recognised, and for nearly fifty years no further information has appeared in literature. Subsequent writers, like Fischer and Tryon merely repeat the original matter.

From Mr. J. Brazier we lately obtained four specimens dredged in three fathoms in Mozelle Bay near Noumea, New Caledonia, the original locality. Except in being rather smaller, viz. 10 mm., these agree with Souverbie's excellent figure and description.

Their examination induces me to suggest transference of the genus from the Semelidæ to the Psammobiidæ. *Montrouziera* seems to me to be nearest to *Asaphis* but whereas *Asaphis* has

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<sup>8a</sup> Ann. des Sciences Naturelles., Ser. viii., Zool., viii., 1898, p. 306, pl. xx., figs. 84, 84.

<sup>9</sup> Cossmann—Mém. Soc. Roy. Malac. Belg., xxii., 1887 (1888), p. 45, pl. ii., figs. 21-22.

two cardinal teeth in each valve, *Montrouzieria* has in the right valve a third cardinal additional, and posterior to the others.

*CLANCULUS COMARILIS, sp. nov.*

(Plate xl., figs. 9, 10, 11).

Shell solid, conical. Whorls, seven, parted by impressed sutures. Colour, white, clouded with pale brown, every third or fourth bead in every row picked out with dark madder-brown, giving a general effect of irregular dark radial stripes on a pale ground. Apex articulated with crimson. Sculpture: on the upper whorls are four gemmule rows, and part of a fifth is visible along the suture, the last whorl has twelve rows, of which seven are on the base. The gemmules are prominent, glossy, about fifty to a whorl, their breadth apart from row to row, but closer within the row. The anterior row of each whorl has larger and more crowded gemmules. The interstices between the rows are microscopically reticulated by spiral and oblique striæ. The aperture descends two gemmule rows. Within the base are four entering plications, otherwise the armature agrees with that of *C. unedo* and related forms. Height, 13; maj. diam., 10; min. diam., 8 mm.

The novelty is perhaps nearest to *Clanculus unedo*, A. Adams<sup>10</sup>, a species already reported from Australia by Messrs. Melvill and Standen<sup>11</sup>. Adams' name is without locality or size and was in literature unrecognisable until Fischer<sup>12</sup> figured and redescribed it from New Caledonia. *C. comarilis* is distinguishable from the New Caledonian species by its narrower form and its colour both of hue and pattern. *C. unedo* has more ridges within the outer lip than *C. comarilis*. By its narrow elevated shape the novelty concludes a sequence from *C. clanguloides* to *C. stigmarius* to *C. unedo*.

*Hab.*—Palm Islands (type, C. Hedley); Barnard Islands (Dr. R. Pulleine); and Cooktown (J. O. Day), all in tropical Queensland.

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<sup>10</sup> A. Adams—Proc. Zool. Soc., 1851 (1853), p. 161.

<sup>11</sup> Melvill and Standen—Journ. Linn. Soc., Zool., xxvii., 1899, p. 175.

<sup>12</sup> Fischer—Coquilles Vivantes, Trochus, 1880, p. 323, pl. 101, fig. 2.

MONODONTA DIMINUTA, *sp. nov.*

(Plate xli., fig. 12).

Shell small, solid, ovate-turbinate, dull and rough. Whorls five and a half, separated by impressed sutures. Colour very variable; entire maroon or entire slate or either with broad radiating stripes of buff, or the spirals articulated with buff on a maroon or slate ground, or combinations of these; the nacre of the interior of the aperture bordered with emerald. Sculpture: elevated spiral ridges, four or five on the upper whorls, about sixteen on the last, smaller and closer on the base, both ridges and interstices are obliquely crossed by fine growth striae. Aperture subquadrate, brilliantly nacreous with a narrow border. Base of the columella externally expanded, internally bearing three small tubercles. Throat with about seven entering ridges which commence at the bevel within the lip, body whorl with a slight smear of callus. Height, 7; maj. diam., 7; min. diam., 6 mm.

As a dwarf form this represents within the Queensland tropics the *Austroclea* of temperate Australia.

Apart from the great difference in size, *M. diminuta* is distinguished by several tubercles at the base of the columella, where *M. zebra* and *M. constricta* have but one.

*Hab.*—I have collected this species on the beach at Mapoon (type), Sweers Island, Cape York, Cairns, Dunk, Hinchinbrook and Palm Islands. It was sent as from Port Curtis by Mr. J. Shirley, and from Thursday Island by Dr. C. G. Seligmann.

MINOLIA HENNIANA, *Melvill.*

(Plate xli., figs. 13, 14, 15).

*Minolia henniana*, Melvill, Journ. of Conch., vi., 1891, p. 410, pl. ii., fig. 14.

The type of this species was obtained at Magnetic Island, near Townsville, Queensland. The figure of it is rough, the description brief and it is therefore not easy to identify. Not without hesitation I assign here a species which I collected at several places in the Gulf of Carpentaria, Mapoon, Van Diemen Inlet, Sweer Island and Mornington Island, a specimen from the last

being figured herewith. It is 4 mm. in major diameter but has five whorls, as is usual in the genus, not four as is ascribed to *M. henniana*. A microscopic sculpture of fine radial threads over-run the spirals and are more apparent on the base. In colour it is variable, the figured example has walnut-brown radial flames on a grey ground, in others the flames are brick red and in some the flames break up into small chequers.

LARINA (?) TURBINATA, *Gatliff and Gabriel*.

*Larina* (?) *turbinata*, Gatliff and Gabriel, Proc. Roy. Soc. Vict., xxii., (n.s.), 1909, p. 35, pl. xiii.

Under this title was described a mollusc dredged alive in five fathoms in Western Port, Victoria. The same species was subsequently procured by Mr. W. L. May in forty fathoms off Schouten Island, Tasmania.<sup>13</sup>

Though first described from "Moreton Bay," Mr. E. A. Smith shows that *Larina* is related to *Vivipara* and is "undoubtedly a fresh water form." In rebuttal Messrs Gatliff and Gabriel suggest that tidal influence might prevail in the Mackenzie River, Queensland, at the spot where typical *Larina* occurred. Unfortunately for this argument the Mackenzie flows not into the sea, but into the Fitzroy more than a hundred miles from marine influence. Another species of *Larina* was discovered by D'Albertis in the Upper Fly River, British New Guinea.

Pictures of the two shells look alike, but actually *L. turbinata* has but superficial resemblance to the real *Larina*. Though destructive criticism of this classification is easy, constructive work of correctly placing the Victorian shell is hard. With happier treatment the radula and operculum might have directed us to its natural position. But the operculum was lost, the radula left undescribed and figured as a featureless blur.

Failing the introduction of a new genus I would suggest for the reception of *L. (?) turbinata*, Pfeffer's Antarctic genus *Pellilitorina*.<sup>14</sup> To this belong *P. setosa*, Smith, from Kerguelen, and *P. pellita*, Martens, from South Georgia.

<sup>13</sup> May—Proc. Roy. Soc. Tasm., 1910, p. 308.

<sup>14</sup> Pfeffer—Jahrb. Hamb. Wiss. Anst., iii., 1886, p. 77, pl. 3, figs. 6, 7.

*Amauropsis* (?) *rossiana*, Smith,<sup>15</sup> from McMurdo's Sound appears akin. Somewhat similar features are presented by the Antarctic genera *Neoconcha*, Smith, and *Trichoconcha*, Smith.

Probably *Amauropsis morchii*, Adams and Angas<sup>16</sup> should accompany these in a transfer to *Pellilitorina*.

ALVANIA PRÆTORNATILIS, *sp. nov.*

(Plate xli., fig. 16).

Shell solid, conical, glossy, narrowly perforate, periphery angled, shoulder smooth steeply sloped, base sculptured. Colour uniform dull white. Whorls five parted by deeply channelled sutures. Sculpture: first whorl and a half with about six uniform equidistant spiral threads, vanishing on latter whorls, which have the shoulder smooth, periphery girt with prominent double keel, and base with five feebler spirals. Umbilicus a narrow furrow. Aperture entire subcircular, outer lip much thickened. Height, 3; breadth, 1.6 mm.

This nearest approaches *Rissoa imbrex*, Hedley,<sup>17</sup> in which the spire whorls are more exsert, though of similar sculpture. The novelty is shorter, broader, more solid and has the base spirally ridged, whereas in *R. imbrex* it is smooth.

*Hab.*—The species is represented by a single specimen dredged in November, 1880, in 35 fathoms off Broughton Island, Port Stephens, N. S. Wales. It is recorded on p. 21 of the Annual Report of this Museum for 1881 as “No. 62 *Rissoa*, *sp. nov.*”

RISSOINA CARPENTARIENSIS, *sp. nov.*

(Plate xlii., fig. 20).

Shell small, solid, ovate. Colour: the beachworn specimens before me are white. Whorls five, rapidly increasing. Sculpture: stout projecting spiral ribs parted by interstices of equal breadth, of these the body whorl has seven to nine, the penultimate four,

<sup>15</sup>Smith—Nat. Antarctic Exp., iii., Moll., 1907, p. 5, pl. 5, fig. 6.

<sup>16</sup>Adams and Angas—Proc. Zool. Soc., 1863, p. 423; Hedley—Proc. Linn. Soc. N. S. Wales, xxvi., 1901, p. 700, pl. xxxiv., figs. 19, 20.

<sup>17</sup>Hedley—Proc. Linn. Soc. N. S. Wales, xxx., 1908, p. 469, pl. x., fig. 33.

the antepenultimate three. A heavy funicle runs round the basal axis into the varix. Aperture perpendicular elliptical, bordered by a singularly prominent varix. Length, 3.4; breadth, 2.1 mm.

The small size, strong spiral sculpture, and absence of emargination on the anterior lip, characterise this eccentric species.

*Hab.*—I gathered a few specimens on the beach at Mornington Island, Gulf of Carpentaria, Queensland.

*Rissoina rhyllensis*, *Gatliff and Gabriel*.

*Rissoina rhyllensis*, Gatliff and Gabriel, Proc. Roy. Soc. Vict., xxi., 1908, pp. 367, 379, pl. xxi., fig. 8.

*Rissoina fausta*, Hedley and May, Rec. Austr. Mus., vii., 1908, p. 117, pl. xxii., fig. 10.

After interchange of specimens, it has been mutually agreed that these names refer to the same species. That of *R. rhyllensis* enjoys a few days precedence over *R. fausta*. The species was simultaneously observed by Dr. Verco in South Australia.<sup>18</sup>

*POTAMOPYRGUS RUPPIÆ*, *sp. nov.*

(Plate xli., fig. 17).

Shell small, rather thin, oblong ovate, narrowly perforate. Colour sometimes uniform brown, or buff or olive, more frequently ground colour olive-buff with two cinnamon bands, one at the horizon of the lip insertion, another midway between that and the suture. Whorls four rounded. Surface smooth, but faint keels are sometimes and irregularly developed. Aperture simple entire, rounded below and angled above; columella margin a little reflected, inner lip considerably thickened in the adult. Length, 2.15; breadth, 1.3 mm.

This is related to the Victorian *P. buccinoides*, Quoy and Gaimard<sup>19</sup> but is smaller, proportionately broader, less tightly coiled with fewer whorls.

<sup>18</sup> Verco—Trans. Roy. Soc. S. Austr., xxxii., 1908, p. 341.

<sup>19</sup> Quoy and Gaimard—Voy. Astrolabe, Zool., iii., 1834, p. 175, pl. 58, figs. 13-15.

*Hab.*—Type from brackish water in Deewhy Lagoon a few miles north of Sydney. Here I found the species living in abundance on the thread-like foliage of a plant which Mr. J. H. Maiden has kindly identified for me as *Ruppia maritima*, Linne. It was associated with *Tatea rufilabris*, A. Adams, *Salinator fragilis*, Lamarek, and *Modiola subtorta*, Dunker. The shell was also taken in the neighbouring lagoon of Freshwater by the late Mr. F. E. Grant. I have also seen it in a mangrove swamp in Lane Cove, Port Jackson.

*CROSSEA GEMMATA*, *sp. nov.*

(Plate xli., fig. 19).

Shell rather large, thin, pellucid. Colour uniform white. Whorls four and a half, rounded, last whorl descending, almost free finally. Sculpture: protoconch of a whorl and a half small and smooth, on the following whorls about half a dozen small sharp spiral keels whose interstices are latticed by radial ribs, these latter fade gradually away. On the body whorl the spirals amount to about thirteen, broad flat smooth interstices separate narrow sharp erect ridges. The crest of each spiral is beset with a row of very minute and crowded beads, about eighty to a whorl. Aperture subcircular, the outer lip fimbriated by the ends of the spirals. A funicle represented by the innermost spiral running out to the anterior angle of the lip. Umbilicus deep and narrow. Length, 3.75; breadth, 3.5 mm.

No other species in the genus has beaded ribs, though in cancellate sculpture *C. concinna*, Angas, and *C. cancellata*, Ten. Woods, make an approach.

*Hab.*—I collected a single specimen on the beach at Mapoon, Gulf of Carpentaria.

*COUTHOUYIA ASPERA*, *sp. nov.*

(Plate xli., fig. 18).

Shell ovate-acuminate, thin. Colour white. Whorls six, rapidly increasing, gradate, last descending almost uncoiled. Sculpture: last whorl with about twenty-five fine spiral sharp equal threads, decussated by fine radial threads which latterly



and especially towards the base become evanescent. On the upper whorls radial lamellæ predominate and the spirals gradually disappear. Aperture D-shaped, guttered at the anterior angle, whence a serrate crested funicle winds into the umbilicus. Umbilicus sub-cylindrical, deep, narrow, longitudinally striate within by growth lines, overhung by the curled margin of the columella. Length, 5·3; breadth, 3·5 mm.

This is intermediate between the two Australian species already known, being less rough than *C. aculeata*, Hedley,<sup>20</sup> but rougher than *C. gracilis*, Brazier.<sup>21</sup> Apparently *C. thelacme*, Melvill<sup>22</sup>, from the Persian Gulf is also related.

*Hab.*—I obtained a few specimens of this species in 17-20 fathoms off Masthead Island, Capricorn Group, Queensland.

VANIKORO SIGARETIFORMIS, Potiez and Michaud.

(Plate xlii., figs. 21, 22).

*Velutina sigaretiformis*, Potiez and Michaud, Galerie Moll. Douai, 1838, p. 508, pl. xxxv., figs. 21, 22.

*Narica sigaretiformis*, Recluz, Mag. de Zool., 1845, p. 55, pl. cxxxii., fig. 3.

The *Vanikoro* which is commonest in Sydney Harbour appears to me to be *V. sigaretiformis*, Potiez and Michaud. Mr. E. A. Smith is of the opinion that the *V. recluziana*, Adams and Angas, described<sup>23</sup> from Sydney should be united to it.

In the genus *Vanikoro* it is frequent that earlier whorls carry comparatively prominent radial ribs, which at a certain stage cease abruptly and are succeeded by an entirely different scheme of delicate spiral threads. These diversely ornamented upper whorls appear to afford the most tangible features for specific differentiation in this difficult group. So sudden and complete is the change that observers have failed to connect the young with

<sup>20</sup> Hedley—Proc. Linn. Soc. N. S. Wales, xxv., 1900, p. 89, pl. iii. fig. 10.

<sup>21</sup> Brazier—*Loc. cit.*, p. 506, pl. xxvi., fig. 13.

<sup>22</sup> Melvill—Proc. Malac. Soc., vi., 1904, p. 54, pl. v., fig. 20.

<sup>23</sup> Adams and Angas—Proc. Zool. Soc., 1863, p. 424.

the adult of the same shell. Thus Dr. Verco concluded that his *Vanikoro denselaminata* was the young state of *Adeorbis vincentiana*, Angas.<sup>24</sup>

To make clear the change which *V. sigaretiformis* undergoes, I present drawings of one specimen 3.5 mm. in diameter and of another 7 mm. in diameter, the species finally reaching a diameter of 11 mm.

Mr. Smith explains<sup>25</sup> that the adult shell of *V. expansa*, Sowerby, is unrecognisable from the figure and description of the immature type. This species has as yet only been recorded from North West Australia. The additional information now available leads me to identify as *V. expansa* a shell widely distributed in Queensland, which I collected on the beaches at Mapoon, Karumba, and Forsyth Island, Gulf of Carpentaria, dredged in 7-10 fathoms at Port Curtis, and received from Caloundra.

As far as my experience goes, *V. cancellata* is restricted to the coral reefs, and in Queensland *V. expansa* replaces it in the muddy water of the mainland coast.

*Nerita cancellata*, Chemnitz, on which Lamarck founded his *Sigaretus cancellatus* is quite different from the species which Herman had previously and regularly described as *Nerita cancellata*.<sup>26</sup>

Mr. E. A. Smith in the paper above cited, transfers to *Vanikoro Adeorbis vincentiana*, Angas. Two other species should accompany this, viz. *Adeorbis angasi*, A. Adams,<sup>27</sup> and *A. angulata*, Hedley<sup>28</sup>.

These three appear to constitute a distinct section of the genus.

SYRNOLO MANIFESTA, *sp. nov.*

(Plate xlii., figs. 23, 24).

Shell rather large, elongate conical, solid, smooth and glossy. Colour uniform milk white. Adult whorls, ten, tapering, gradually increasing, each with a narrow but sharp step at the

<sup>24</sup> Verco—Trans. Roy. Soc. S. Austr., xxxiv., 1910, p. 118.

<sup>25</sup> Smith—Proc. Malac. Soc., viii., 1908, p. 109.

<sup>26</sup> Herman—Naturforscher, xvi., 1781, p. 56, pl. ii., figs. 8, 9.

<sup>27</sup> Adams—Proc. Zool. Soc., 1863, p. 424, pl. xxxvii., figs. 11, 12.

<sup>28</sup> Hedley—Rec. Austr. Mus., vi., 1905, p. 50, fig. 15.

summit. Protoconch small, slightly immersed, half turned over, of an involute whorl and a half. Aperture pyriform, broadly rounded below, constricted above. Columella margin reflected. Plication prominent, entering obliquely. Beneath it a narrow axial crevice. Length, 15·5; breadth, 4·5 mm.

This appears near to a South Australian Pleistocene fossil, *Syrnola jonesiana*, Tate.<sup>29</sup> I have no specimen of the fossil for comparison, it is of smaller size with fewer whorls.

*Hab.*—A single specimen (the type) from the Six Mile Beach, Port Stephens, N. S. Wales, was obtained from Mr. J. Brazier. Three others were collected by Mr. C. Laceron at Trial Bay, N. S. Wales.

#### ODOSTOMIA REVINCTA, *sp. nov.*

(Plate xlii., fig. 25).

Shell small solid, sub-cylindrical imperforate. Colour uniform buff. Whorls two and a half, exsert, procumbent nuclear whorls and three adult whorls parted by deeply channelled sutures. Sculpture massive, on each whorl a chain of beads, about fourteen to a whorl, above a simple solid peripheral rib. On the base five spiral keels diminishing in descending order. Aperture obliquely pyriform. Length, 1·35; breadth, 0·65 mm.

This species appears to belong to the sub-genus *Miralda*.<sup>30</sup> Its striking sculpture readily distinguishes it from kindred forms. To *Miralda* should also be transferred the Queensland shells I described as *Pyrgulina umeralis*, *P. zea* and *P. senex*.

*Hab.*—I obtained two specimens in 15 fathoms off the Palm Islands, Queensland.

#### CHILEUTOMIA CORALLINA, *sp. nov.*

(Plate xlii., fig. 26).

Shell minute, sub-cylindrical, thin, smooth and glossy. Colour white. On the decollated specimen under examination, five whorls remain, these increase rapidly and are parted by impressed

<sup>29</sup> Tate—Trans. Roy. Soc. S. Austr., xxii., 1898, p. 70, p. 83, text fig.

<sup>30</sup> Dall and Bartsch—Bull. U. S. Nat. Mus., 68, 1909, p. 176.

sutures. On each side ascend a series of nearly continuous varices, which cause the shell to appear slightly compressed from back to front. Aperture pyriform, outer lip advanced peripherally, columella margin thickened. Length, 2.25; breadth, 0.65 mm.

Compared with *C. anceps*, Hedley,<sup>31</sup> the novelty has less developed varices and is much smaller and more slender.

*Hab.*—A single specimen was taken by Mr. A. U. Henn, in 10½ fathoms near Bow Reef, off Cape Sidmouth, North Queensland.

*SCAPHELLA MOSLEMICA*, *sp. nov.*

(Plate xliii., figs. 29, 30).

Shell small, thin, ovate-fusiform. Whorls three besides a protoconch of three and a half whorls. In the adult the spire whorls are coated with thick opaque callus. Colour cream to salmon buff, longitudinally painted by about a dozen deeply sinuate narrow cinnamon lines. Columella with four plications, between the upper pair an interstitial thread sometimes occurs. Length, 55; breadth, 25 mm.

The novelty is closely related to *S. undulata*, Lamk., which it represents and replaces in deep water, and from which it differs by being a smaller thinner shell with a smaller protoconch and having the spire whorls wrapped in a white sheet of callus. The Tertiary fossil, *Voluta masoni*, Tate,<sup>32</sup> approaches in form and size but differs in colour pattern.

*Hab.*—East of Sydney in 250 fathoms, off Wollongong in 100 fathoms, 80 fathoms 22 miles east of Narrabeen, (C. Hedley); and deep water between Gabo and Flinders Island (Mr. H. C. Dannevig).

*MARGINELLA GEMINATA*, *sp. nov.*

(Plate xlii., fig. 28).

Shell biconical, glossy, solid, and opaque in the old, thin and translucent in the young. Colour uniform white. Whorls four, flattened above the shoulder, contracted at the base. After

<sup>31</sup> Hedley—Proc. Linn. Soc. N. S. Wales, xxv., 1900, pp. 90, 505, pl. iii., figs. 5, 6, 7.

<sup>32</sup> Tate—Trans. Roy. Soc. S. Austr., xi., 1889, p. 128, pl. iii., fig. 9.

maturity the spire is overspread with a callus sheet obscuring the sutures. Another and thicker layer is extended on the body-whorl in advance of the aperture. Aperture narrow, anteriorly subrostrate, posteriorly channelled and ascending the previous whorl. Outer lip with a thick varix externally and about ten evenly spaced small denticules internally. Columella with four strong elevated folds, the posterior horizontal about half way along the aperture, the anterior running into the margin of the subrostrate extremity. Length, 6; breadth, 4 mm.

In size, shape, colour and general appearance *M. geminata* closely resembles *Marginella levigata*, Brazier,<sup>33</sup> from Torres Strait and New Guinea. At first acquaintance of *M. geminata* I figured it and considered it a variety of *M. levigata*.<sup>34</sup> On reconsideration the differences though slight are found to be constant and, supported by a very different habitat, are believed to justify specific independence.

*M. levigata* has a narrower aperture, taller spire, less angled spire whorls, the varix more wing-like and has more and closer denticules within the outer lip. It also inhabits very warm water but its twin lives in cold water. *Marginella baudinensis*, Smith,<sup>35</sup> from tropical West Australia appears to be identical with Brazier's species. To assist comparison I now re-figure both species, *M. levigata* (Pl. xlii., fig. 27) from Torres Strait and *M. geminata* (Pl. xlii., fig. 28) from 100 fathoms off Wollongong, N. S. Wales.

*Hab.*—*M. geminata* is characteristic of the continental shelf, ranging from 25 to 250 fathoms and from Cape Byron in the North to Tasmania in the south. Under the wrong name of *M. levigata* I have already reported it from several localities. In this Museum it is represented as follows:—100 fathoms off Wollongong (type); 80 fathoms off Narrabeen; 250 fathoms off Sydney (C. Hedley); off Cabbage Tree Island (Museum Expedition of 1880); 111 fathoms off Cape Byron (G. H. Halligan); Westernport, Victoria (C. J. Gabriel); 63-75 fathoms Port Kembla (figured in 1903); 40-50 fathoms Cape Three Points; 54-59 fathoms Wata Mooli; 50-52 fathoms Botany Heads (Thetis Expedition); 40 fathoms off Schouten Island, Tasmania (W. L. May).

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<sup>33</sup> Brazier—Proc. Linn. Soc. N. S. Wales, i., 1877, p. 225; Hedley—Rec. Austr. Mus., iv., 1901, pl. xvi., fig. 5.

<sup>34</sup> Hedley—Austr. Mus. Mem., iv., 1903, p. 365, fig. 89.

<sup>35</sup> Smith—Proc. Malac. Soc., iii., 1899, p. 208, fig. 2.

*DUPLICARIA VALLESIA, sp. nov.*

(Plate xliii., fig. 31).

Shell elongate-subulate, glossy, rather thin. Colour: a median cream band between pale orange on the upper half of the whorl and on the base, six summit whorls dark orange. Whorls fourteen, including a two whorled turbinate protoconch. Sculpture: a deep furrow winds along the upper third of each whorl. Straight rather oblique riblets, discontinuous from whorl to whorl, parted by wider interstices, about eighteen to a whorl, are well developed at the suture, interrupted by and reform below the sulcus, and fade at the periphery. Between the ribs appear under a lens a few faint spiral threads. Aperture small, narrow, deeply notched anteriorly. Length, 27; breadth, 6 mm.

On account of anatomical characters detailed by Troschel, Dr. W. H. Dall ranked the species grouping round *Buccinum duplicatum*, Linne, as an independent genus of the Terebridae, under the name of *Duplicaria*.<sup>36</sup> This primitive group is well developed in Australia. Among local species, *D. ustulata*, Deshayes, is comparable to the novelty in size and shape. It is however more solid, of a uniform colour with finer and more numerous ribs.

*Hab.*—Trial Bay, N. S. Wales, several specimens collected by Mr. Carl Laceron and presented by the Curator of the Technological Museum, Sydney.

*CONUS MICARIUS, sp. nov.*

(Plate xliii., fig. 32).

Shell small, conical, spire a third of the total length. Whorls six and a half, parted by a channelled suture. Colour variable, opaque white bosses, ten to a whorl, are wreathed round the summit of the last whorl and ascend the spire, where they are frequently underlined by brown. Another opaque white band often occupies the middle of the body whorl and may be flanked above and below by translucent fawn belts, leaving the anterior end white. Or below the persistent white shoulder zone the

<sup>36</sup> Dall—*Nautilus*, xxi., March, 1908, p. 124, and *Bull. Mus. Comp. Zool.*, xliii., 1908, p. 245.

remainder may be mottled with opaque white and fawn, or upon such a ground there may run interrupted spiral lines of chocolate. Sculpture: below the opaque shoulder band, about sixteen raised spiral threads surround the shell and penetrate the aperture. Length, 6; breadth, 3.5 mm.

But for *C. parvus*, Pease, this would be the smallest of its family. Pease has given little information of the Hawaiian shell, but, judging from Langkavel's<sup>37</sup> figure, the Australian shell appears to differ by a shorter spire, absence of radial sculpture and presence of opaque ocelli. Pease's species is considered by Pace<sup>38</sup> to be a member of the "*Columbella dormitor* group."

*Hab.*—Beach near Cable Station, about fifteen miles southwest of Cape York—type (Hedley); Prince of Wales Island Froggatt; Murray Island (Hedley and McCulloch).

*DAPHNELLA VERSIVESTITA, sp. nov.*

(Plate xliii., fig. 33).

Shell large, rather thin, elongate conic, earlier whorls angled, last rounded. Colour cream with a few irregularly scattered pale brown spots. Whorls nine, including a two-whorled protoconch. Sculpture: the minute turbinat protoconch is finely spirally grooved. In contrast to this the first adult whorl appears with a broad shoulder, beneath which are two conspicuous keels. Fresh spirals arise by intercalation on the subsequent whorls, till alternately larger and smaller, they amount to sixteen on the penultimate. Behind the aperture are about twenty-eight spiral cords of various sizes, sometimes with minor threads in their interstices. On the second mature whorl, nine prominent radial ribs arise, undulating the keels. After increasing to eleven and maintaining their relative prominence for several whorls, the ribs commence to fade on the antepenultimate, they disappear from the last whorl. About the penultimate and last whorl, equal radials and spirals produce by intersection an evenly beaded surface. The anal fasciole occupies a shelf on the summit of the whorl and is sculptured by crescentic threads. Aperture ovate, outer lip dentate from the revolving sculpture, inner lip with a thin callus, at the posterior angle a slight sinus, canal short and broad. Length, 23; breadth, 9 mm.

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<sup>37</sup> Langkavel—Donum. Bismark, 1871, p. 32, pl. i., fig. 1.

<sup>38</sup> Pace—Journ. de Conch., l., 1902, p. 421.



This is the largest of local *Daphnella*, *D. fragilis*, Reeve, being next in size. From that *D. versivestita* is distinguishable by the strong radial ribs of the upper whorls. In the novelty the body whorl is about half, in *D. fragilis* about two-thirds of the total length.

*Hab.*—Botany Heads (type); Broken Bay (W. H. Hargraves); Port Jackson (J. Brazier); Newcastle (J. Mitchell); Catherine Hill Bay (R. L. Cherry); Woolgoolga (C. Laceron) and Gerrin-gong (R. Etheridge, Junr.).

LATIRUS FISCHERIANUS, *Tapparone-Canevari*.

*Latirus fischerianus*, Tapp. Can., Journ. de Conch., xxx., 1882, p. 33, pl. ii., figs. 8, 9.

*Nassaria mordica*, Hedley, Proc. Linn. Soc. N. S. Wales, xxxiv., 1909, p. 462, pl. xlv., fig. 100.

Mr. J. C. Melvill in a recent review<sup>39</sup> of the genus *Latirus*, conjectured that *Nassaria mordica* would prove identical with *Peristernia corallina*, Melvill and Standen. That he might definitely decide the question I forwarded to him specimens of the former. Having examined these he replied (8 = ix = 11) that though *N. mordica* is distinct from *P. corallina*, it is identical with *L. fischerianus*, Tapp. Can.

LATIRUS PAETELIANA, *Kobelt*,

var. CARPENTARIENSIS, var. nov.

(Plate xliii., fig. 34).

Shell slender, fusiform, canal long. Colour uniform ochraceous. Whorls nine, including a smooth two-whorled protoconch. Ribs broadly undulating, alternate vertically, vanishing on base and towards the suture. Both ribs and interstices over-run by low spirals of which there are ten on the penultimate and about thirty on the last whorl. Within the outer lip there are a dozen revolving raised threads which fail to reach the edge. Length, 34; breadth 14 mm.

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<sup>39</sup> Melvill—Journ. of Conch., xiii., 1911, p. 168.

From *Turbinella paeteliana*, Kobelt,<sup>40</sup> this appears to differ in colour and by having the same number of whorls in three-quarters the size. Still in general appearance it agrees so far with Kobelt's figure and description that it seems better to introduce it as a variety than as a new species.

*Hab.*—I dredged several specimens in 10 fathoms off Mapoon, Gulf of Carpentaria.

MITRA NODOSTAMINEA, *sp. nov.*

(Plate xliii., fig. 35).

Shell small, solid, fusiform. Colour uniform gray buff. Whorls seven, including a smooth two whorled protoconch, divided by channelled sutures. Sculpture: all adult whorls are closely latticed by radial and revolving cords. The radials amount on the last whorl to fifty, densely packed, varying from slight to stout, the larger appearing under the lens as a bundle of fibres. Spirals on the last whorl fifteen, on the upper whorls four, deeply impressed by narrow radial interstices, chiefly appearing as polished knots on the radial cords. Aperture very narrow, outer lip simple, inner overspread with a layer of callus. Columella plications three, anterior slight, posterior well developed. Length, 14; breadth, 6 mm.

This is a deep water representative of *Mitra strangei*, Angas<sup>41</sup>, in which spiral sculpture prevails or predominates. Gatliff and Gabriel have reduced *Mitra franciscana* to a synonym of *M. strangei*.<sup>42</sup> In the original description Angas states that *M. strangei* was also obtained at Moreton Bay by F. Strange to whom he dedicated it. Overlooking this note I failed to include the species in the catalogue of the Marine Mollusca of Queensland.

*Hab.*—As *Mitra strangei* the novelty is recorded from 63 to 75 fathoms off Port Kembla (type of *M. nodostaminea*); from 50-52 fathoms off Botany<sup>43</sup>; and from 80 fathoms off Narrabeen.<sup>44</sup> I have also taken it in 100 fathoms off Wollongong.

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<sup>40</sup> Kobelt—Conch. Cab., 2nd Ed., iii., pt. 3, 1876, p. 71, pl. 18, figs. 2, 3.

<sup>41</sup> Angas—Proc. Zool. Soc., 1867, p. 110, pl. xiii., fig. 4.

<sup>42</sup> Gatliff and Gabriel—Proc. Roy. Soc. Vict., n.s., xxi., 1908, p. 371.

<sup>43</sup> Hedley—Austr. Mus. Mem., iv., 1902, p. 372.

<sup>44</sup> Hedley—Rec. Austr. Mus., vi., 1907, p. 287.

PYRENE INTRICATA, *nom. mut.*

*Columbella clathrata*, Brazier, Proc. Linn. Soc. N. S. Wales, i., 1877, p. 229; *Id.*, Hedley, Rec. Austr. Mus., iv., 1901, p. 123, pl. xvi., fig. 6 (not of Dujardin, 1835, of Gurnitz, 1875, nor of Tate, 1893, *vide* Pace, Proc. Malac. Soc., v., 1902, p. 67).

It has been shown that in Palæontology the name of *Columbella clathrata* has been thrice proposed. As Brazier's choice of this name is thereby twice invalidated a substitute is here suggested.

MUREX PATAGIATUS, *sp. nov.*

(Plate xliii., fig. 36).

Shell rather small but solid, biconical. Six whorls remain on the type, which is decollated. Colour cream. Sculpture: there are three varices to a whorl, midway between each pair is a rib almost as prominent as a varix. Fine even spiral threads at the rate of about twenty to the last and eight to the penultimate whorl overrun the shell. These are crossed by a radial system of close fine scales elaborately plicated in the interstices. Aperture ovate, fortified without by a broad and unbranched varix, on the opposite side the inner lip stands clear of the shell for some distance. Canal short and broad. Length of type, 34; breadth, 18 mm. Another specimen 46 and 26 mm.

The novelty is closely related to *M. denudatus*, Perry, but whereas *M. denudatus* has always two intervariceal ribs, *M. patagiatus* has, like *M. territus*, Reeve, but one. Further, as far as limited material permits me to judge, the varices of *M. patagiatus* are not prone to sprout into fronds like *M. denudatus*. In being so bare of frills it resembles *M. capucinus*, Lamk.

*Hab.*—Type dredged by Mr. J. Brazier in 8 fathoms off Green Point, Watson's Bay, Port Jackson. Two worn specimens were gathered by myself on the beach at Ballina, N. S. Wales. Mr. Brazier's specimen is the only one that I have seen from the neighbourhood of Sydney, so the species is rare here and is probably an intruder from the north.

*THAIS AMBUSTULATUS, sp. nov.*

(Plate xliv., fig. 37).

Shell of a medium size, very solid, biconical. Colour cream, stained with chocolate on the peripheral projections. Whorls seven. Sculpture: six prominent perpendicular ribs appear on the periphery, but fade away above and below, on the spire these are represented by peripheral knots. Dense spiral threads surround the shell at the rate of about fourteen on the penultimate and thirty-two on the last, a pair at the periphery and two or three below much exceed the rest in size. All these are overrun by small close scales. Columella, broad and smooth. Outer edge of lip wrinkled by external sculpture, deeper within lie four small tubercles. Behind the short and broad canal is variously developed an axial cavity. Length, 33; breadth, 22 mm.

No other Australian shell seems close enough to be worth comparison with this. Under my manuscript name this species is included in a list of additional Queensland species by Mr. J. Shirley.<sup>45</sup> I may take this opportunity to suggest that though much valuable information is conveyed in this list, yet in many cases Mr. Shirley has been misled by correspondents who furnished him with foreign shells. From Torres Strait especially several exotic species are noted, among which the European *Gibbula magus* is a glaring example. Our surprise at finding *Cypræa onyx* in an Australian Catalogue is not lessened by observing that it is reported from an inland locality—Burketown. By restricting his records to his own experience Mr. Shirley might have avoided adding a fresh water shell, *Neritina pulligera*, to the marine fauna; or a synonym for an additional entry, as *Austriella sordida*, Tenison Woods, for *Lucina corrugata*, Deshayes.

*Hab.*—Caloundra, Queensland, on rocks (Kesteven and Shirley); Ballina, N. S. Wales (Hedley), and Trial Bay (Laseron).

*CASSIDULA NUCLEUS, Martyn.*

*Limax nucleus*, Martyn, Universal Conchologist, 1784, pl. 67, outer figures.

The identity of this species has been the subject of debate. Dr. von Martens made a critical examination<sup>46</sup> of Martyn's work

<sup>45</sup> Shirley—Proc. Roy. Soc. Q'land., xiii., 1911, p. 102.

<sup>46</sup> Martens—Malak. Blatt., xix., 1872, p. 12.

and concluded that Pfeiffer, Gassies and others who had attempted to identify *C. nucleus* had failed to do so. He thought that this shell was represented by *Auricula sulculosa*, Mousson.<sup>47</sup> Afterwards he altered this opinion and re-established<sup>48</sup> *C. sulculosa*. Dr. von Martens seems to have been unaware of the falsity of the locality "Otaheite" ascribed to the species in question. Garrett states that no *Cassidula* penetrates further east into the Pacific than Samoa.<sup>49</sup> This statement not only corrects an error but limits the area within which *C. nucleus* is to be sought. It may be assumed that with Martyn's other shells this was procured by Capt. Cook's expedition. Within the range of the genus, that expedition visited Tanna in the New Hebrides, Balade and an islet Ile Amere, south of New Caledonia, several places on the east coast of Australia and Pulo Condore, an island south of Cochin China. Had it occurred in the last, Dr. von Martens who made so close a study of the East Indian mangrove mollusca could not have failed to recognise it. There is a New Caledonian shell identified by Crosse<sup>50</sup> and excellently figured by Gassies for *C. nucleus*. But that consistently differs in its proportions, being shorter and broader than the original illustration. From Cooktown and Moa Island, Torres Strait, there are in this collection specimens whose proportions exactly coincide with the figure in the "Universal Conchologist". The Queensland shells are 15 mm. long, whereas the figure is 20 mm. If it be permissible to suppose that the artist enlarged his drawing the correspondence would be complete. The figure shows a shell without an upper parietal plait, our specimens show that this plait is a senile character which does not appear till the rest of the armament of the aperture has formed. While the "Endeavour" was being repaired on Cooktown beach her people had the opportunity of gathering the species where it still occurs.

*CASSIDULA BILABIATA*, *sp. nov.*

(Plate xliv., figs. 38, 39, 40).

Shell small solid ovate, pointed above, obliquely truncate below. Colour buff, banded with chocolate, sometimes four dark bands are separated by light bands of equal breadth, sometimes the lower bands coalesce, usually a dark and a light

<sup>47</sup> Mousson—Land. Süswass. Moll. Java, 1849, p. 45, pl. v., fig. 8.

<sup>48</sup> Martens in Weber—Zool. Erg. Niederland. Ostind., iv., 1897, p. 143.

<sup>49</sup> Garrett—Proc. Zool. Soc., 1887, p. 297.

<sup>50</sup> Crosse—Journ. de Conch., xlii., 1894, p. 318.

band ascend the spire, callus of the aperture ochraceous. Whorls six. Sculpture: close fine spiral threads, crossed by fine growth striae, a stronger subsutural cord ascends the upper whorls. Base a funnel, surrounded by a strong keel. A stout projecting varix continues the basal keel and slightly intrudes upon the suture. Beyond the varix the aperture is considerably produced but the ordinary colour and sculpture is not repeated upon this part of the shell. Within the outer lip a projection rises from the base for two-thirds the height of the aperture and there ends abruptly. Midway down the aperture on the left side, at the horizon of the basal keel, is a stout entering plication. The space above and below this is divided by a smaller parietal tubercle and a stronger columella plait. Length, 7.5; breadth, 4 mm.

*Hab.*—I obtained eight specimens from the roots of mangroves near the beach about a mile south of Cooktown, Queensland. The uniformity of the series precludes the idea that the twisted base might be a deformity.

PAPUINA MUENSIS, *sp. nov.*

(Plate xlv., figs. 44, 45).

Shell small, trochoidal, spreading towards the base and thus gaining a concave profile, minutely perforate. Whorls six, rather rapidly increasing, slightly convex and parted by impressed sutures. Colour buff with a narrow zone of chocolate on the periphery, continued as a supersutural thread on the upper whorls and visible within the aperture; the apex and the columella are also chocolate. Sculpture: oblique irregular growth lines which tend to form knots on the periphery, under the lens appear also close incised waved spiral lines. Aperture elliptical, abruptly descending and very oblique, lip produced and narrowly reflected margins continued and united by a callus ridge. Columella very short and oblique. Base tumid. Umbilicus narrow and oblique. Height, 14; maj. diam., 14; min. diam., 12 mm.

The nearest Australian relation to *P. muensis* seems to be *P. piretiana*, Pfeiffer, from Night Island, about one hundred and eighty miles to the south. The latter is far larger, proportionately narrower and the aperture is less contracted. The figure of *Helix bertiniana*, Tapparone Canefri<sup>51</sup> has some resemblance to the novelty.

*Hab.*—Mua, Moa or Banks Island in Torres Strait. Collected by Mr. H. Elgner.

<sup>51</sup> Tapparone Canefri—Ann. Mus. Civ. Genoa, xix., 1883, pl. ii., figs. 21-26.

PLANISPIRA CYCLOSTOMATA, *Le Guillou*.

(Plate xlv., figs. 51, 52, 53, 54).

Among fallen leaves under bushes by the sea-side at Mapoon, entrance of the Batavia River, on the east coast of the Gulf of Carpentaria, I gathered in May, 1903 a few land shells. One of these was *Microphyura hemiclaus*a, Tate, and another was the shell illustrated herewith. It is a pale horn colour with a russet peripheral band, maj. diam. 7; min. diam., 5·5; height, 3 mm., and has a remarkable sculpture of elongate grains.

This character leads me to identify it as *Helix cyclostomata*, described by Dr. Le Guillou<sup>52</sup> as "papillis linearibus obsita." The type came from Warrior, Tud, or Toud Island in Torres Strait, about seventy-two miles north-east of Cape York, and was doubtless gathered by himself when the "Zelée," of which he was surgeon-major, touched there in June, 1840.

The official account of the Zoology of this voyage ignores the publication of this and other species by LeGuillon, who seems to have been on bad terms with the authorities. Under the manuscript name of "*Helix strangulata*, Hombron and Jacquinot," L. Rousseau<sup>53</sup> described from Toud Island a shell having regular numerous transverse striae, which in other respects agrees with LeGuillon's description. This name had previously been used for a West Indian shell by C. B. Adams.<sup>54</sup>

The illustration of *H. strangulata*, which had appeared previous to the description of Rousseau, was claimed by Pfeiffer<sup>55</sup> as representing his *Helix tuckeri*. This latter, whose sculpture was defined as "breviter et sparsim pilosa," was described<sup>56</sup> from Sir Charles Hardy Island, about one hundred and eight miles to the south-east of Cape York, and was gathered by Macgillivray in 1844. It was roughly figured in the second edition of Chemnitz's "Conchilien Cabinet," Bd., i., Abth. 12, 1846, pl. 79, figs. 10-12. Subsequently Dr. Pfeiffer suggested the identity of his *H. tuckeri* with *H. cyclostomata*.<sup>57</sup>

<sup>52</sup> Le Guillou—Rev. Soc. Cuv., 1842, v., p. 141.

<sup>53</sup> Rousseau—Voy. au Pôle Sud, Moll. 1854, p. 16, pl. vi., figs. 1-4.

<sup>54</sup> C. B. Adams—Contributions to Conchology, ii., p. 30, 1849.

<sup>55</sup> Pfeiffer—Mon. Helic., iii., 1853, p. 236.

<sup>56</sup> Pfeiffer—Symbolæ ad Hist. Helic., iii., 1846, p. 77.

<sup>57</sup> Pfeiffer—Mon. Helic., i., 1848, pp. 345, 379.



Prof. E. Forbes confirmed the identity of *H. cyclostomata*, *H. strangulata* and *H. tuckeri*, he added a fresh habitat, Sunday Island, a few miles west of Sir C. Hardy Island.<sup>58</sup>

Mr. E. A. Smith gave an obscure figure of *H. cyclostomata*, reported it from Blackwood Bay, Cape York, and added as synonyms, *H. tuckeri*, Pfr. and *H. strangulata*, Hombron and Jacquinot.<sup>59</sup> But in his subsequent report on the land shells collected by Prof. A. C. Haddon in Torres Strait, he altered his opinion and without explanation separated *H. cyclostomata* from *H. tuckeri*, attaching *H. strangulata* to the latter.<sup>60</sup>

Those who united these three names paid no regard to the discrepancy in the sculpture assigned to each; *H. cyclostomata* with elongate papillæ, *H. tuckeri* with short scattered bristles and *H. strangulata* with numerous regular transverse striæ. I find that *H. cyclostomata* has a wide range both geographically and in variation. It inhabits all the islands of Torres Strait and both coasts of Cape York Peninsula. On Naghir Island I collected specimens in which the grain sculpture had almost disappeared, instead were fine radiating thread riblets, thus showing that the *H. strangulata* sculpture is within the variation range of *H. cyclostomata*. Pfeiffer's definition "*breviter et sparsim pilosa*" does not apply to any specimens that I have examined, possibly he mistook the grains for bristles. Since, however, he withdrew *H. tuckeri* as a synonym of *H. cyclostomata*, and Macgillivray, who collected it agreed, I am content to accept their judgment.

Another form has been confused with the foregoing species. I propose now to distinguish it as—

*PLANISPIRA TRUCULENTA*, *sp. nov.*

*Planispira tuckeri*, Pilsbry (*non* Pfeiffer), *Man. Conch.*, 2nd ser., ix., 1894, pl. xix., figs. 18, 19.

In shape, size and colour it agrees with *P. cyclostomata*, but it is without the grained surface, has a more open umbilicus and possesses a tubercle on the inner base of the aperture. Its habitat is Port Curtis, Queensland, twelve degrees south of the locality of the other species. An excellent figure of it has been given under the title of *Planispira tuckeri*, Pfr., by Pilsbry.

<sup>58</sup> Forbes—Voy. "Rattlesnake," ii., 1852, p. 370.

<sup>59</sup> Smith—Zool. "Erebus" and "Terror," *Moll.*, 1874, p. 2, pl. iv., fig. 13.

<sup>60</sup> Smith—Proc. Roy. Dublin Soc., 1890, p. 10.

*XANTHOMELON MARCIDUM, sp. nov.*

(Plate xlv., figs. 47, 48, 49, 50).

Shell solid, deeply lenticular, carinate, spire moderately elevated, base rounded, narrowly perforate. Colour uniform raw umber. Whorls four and a half, gradually increasing, the last suddenly and deeply descending at the aperture. Sculpture: fine irregular oblique growth lines, entire surface roughened by microscopic granules, a well developed keel winds along the periphery of the last whorl and up the spire above the suture. Aperture subrhomboidal, very oblique, margins united by a callus ridge. Lip expanded, slightly thickened and a little reflected, especially at the base. Umbilicus deep and narrow, partly covered by the lip. Specimen figured, maj. diam., 17; min. diam., 15; height, 10 mm.; another specimen, 19; 15; 9 mm.

The form and sculpture of the shell is considerably modified in dry countries, so that the affinities of a species is thereby masked. In the present case the shell characters are an insufficient guide to generic classification and its reference to *Xanthomelon* awaits contradiction or confirmation from anatomical study.

*Hab.*—Uabba Range, twelve miles west of Lake Cudgellico, Central New South Wales. One shell from Mr. R. P. Sellors and several from Mr. James Knight.

*ATYS PALMARUM, sp. nov.*

(Plate xlv., fig. 41).

Shell small, thin, involute, ovate-truncate, smooth, glossy, narrowly perforate above and below. Sculpture: three incised lines on the base and two on the shoulder, intervening area smooth. Aperture crescentic, lip angled at base and vertex, columella reflected. Height, 1.5; breadth, 1.2 mm.

By its inflated form this is related to the typical *Atys*, such as *A. naucum*, Linn., from which it differs by size, by the reduction of impressed lines and by absence of fold on lip and columella.

*Hab.*—I dredged a few specimens in fifteen fathoms off the Palm Islands, Queensland.

HYDATINA EXIGUA, *sp. nov.*

(Plate xlv., fig. 46).

Shell minute, thin, globular, truncate above, rounded below, imperforate. Colour: on a white ground are two narrow peripheral chocolate bands, twice their breadth apart, connected with a wash of cream, and visible internally. Surface smooth. Within the aperture a layer of dull callus is spread on the preceding whorl. Columella deeply spirally inserted. Apex perforate, spire immersed. Height, 1.9; breadth, 1.5 mm.

By size and colour pattern this differs widely from co-generic forms.

Recent additions bring the family Aplustridae to have their focus of distribution in Eastern Australia. *Hydatina physis*, Linne, is of ordinary occurrence from Sydney northwards. *H. albocincta*, Hoeven, was recorded by G. F. Angas from Port Stephens, N.S. Wales, and latterly by J. Shirley from Stradbroke Island, Queensland;<sup>61</sup> it is also in this Museum from Keppel Bay. An example in this Museum of *H. circulata*, Martyn (usually known under the younger name of *H. velum*, Gmelin), from Port Stephens establishes another Australian record. The novelty makes the fourth. *Bullina scabra*, Gmelin, is common in New South Wales. Shirley records it from Caloundra. I found it at the Palm Islands, Queensland, whence it ranges to South Tasmania. *Aplustrum amplustre* has been noted from North Queensland by J. Brazier, Melville and Standen, it has also occurred to me at Green and Murray Islands. It is contended<sup>62</sup> that this genus should be extended to embrace *Diaphana brazieri*, Angas. From Botany Heads, N. S. Wales, *Micromelo guamensis*, Quoy and Gaimard, has been reported.<sup>63</sup>

*H. exigua* was sent to me from Tasmania by Miss M. Lodder as the obscure *Akera tasmanica*, Beddome. Transferring the species to *Hydatina* I used her shell for a figure. Subsequently this species appeared in Sydney Harbour.<sup>64</sup> Messrs Gatliff and

<sup>61</sup> Shirley—Proc. Roy. Soc. Queensland, xxiii., 1911, p. 102.

<sup>62</sup> Hedley—Proc. Linn. Soc. N. S. Wales, xxvii., 1902, p. 16, pl. iii., fig. 36.

<sup>63</sup> Henn—Proc. Linn. Soc. N. S. Wales, xx., 1896, p. 520.

<sup>64</sup> Hedley—Proc. Linn. Soc. N. S. Wales, xxv., 1901, p. 725, fig. 22; *Op. cit.*, xxvii., 1903, p. 603.

Gabriel fortunately obtained the real *Akera tasmanica*, illustrated the shell and corrected my error. Their identification was confirmed by Mr. W. L. May,<sup>65</sup> who, with Prof. R. Tate had redescribed it. From these gentlemen's observations it is clear that I was misled by a wrong identification. This I now withdraw and bring forward the *Hydatina* as a new species distinct from Beddome's *Akera*.

*Hab.*—The original of the present figure and description (type) I obtained (15/5/02) from a bottle sunk in a rock pool at Middle Head, Sydney. Miss Lodder's shell which I drew and returned probably came from North Tasmania, perhaps Ulverstone.

PHILINE ANGASI, *Crosse and Fischer*.

(Plate xliv., figs. 42, 43).

A large *Philine*, common on the Australian and New Zealand coasts was described by Crosse and Fischer as *Bullea angasi*, and they afterwards remarked that it was abundant at Suez.<sup>66</sup>

This Suez form was subsequently named *P. vaillanti* by Issel.<sup>67</sup>

The Australian form has usually, but not unanimously, been maintained as distinct. Kobelt indicates<sup>68</sup> as supporters, Angus, Brazier, Sowerby, Hutton, Watson and Pilsbry. The first to question the current nomenclature was Tenison Woods<sup>69</sup> who referred the Tasmanian mollusc to *P. aperta*, Linn.; in this he was followed by Tate and May.<sup>70</sup> To the European *P. aperta*, Cook has united both *P. angasi*, *P. vaillanti*, Issel, and *P. erythraea*, H. Adams.<sup>71</sup> Treating of the New Zealand form Suter<sup>72</sup> reduces *P. angasi* to a synonym of *P. aperta*. On the contrary when discussing the Victorian mollusca, Pritchard and Gatliff<sup>73</sup> distinguish *P. angasi* from *P. aperta*.

<sup>65</sup> Tate and May—Proc. Linn. Soc. N. S. Wales, 1901, p. 460.

<sup>66</sup> Crosse and Fischer—Journ. de Conch., xiii., 1865, pp. 38, 110, pl. ii., fig. 8.

<sup>67</sup> Issel—Malac. Mar. Rosso., 1869, p. 166, pl. 1, fig. 14.

<sup>68</sup> Kobelt—Conch. Cab., 2 ed., 1., pt. xi., 1896, p. 152.

<sup>69</sup> Ten. Woods—Proc. Roy. Soc. Tasm., 1877, p. 47.

<sup>70</sup> Tate and May—Proc. Linn. Soc. N. S. Wales, xxvi., 1901, p. 418.

<sup>71</sup> Cook—Ann. Mag. Nat. Hist. (5), xvii., 1886, p. 122.

<sup>72</sup> Suter—Index Faun. Nov. Zealand, 1904, p. 69.

<sup>73</sup> Pritchard and Gatliff—Proc. Roy. Soc. Viet., xv., 1903, p. 218.

Pilsbry comments on this controversy.<sup>74</sup> He suggests that means for discrimination might be furnished by the gizzard plates. Such plates from a Norwegian specimen are figured by Sars<sup>75</sup> and more elaborately from a French specimen by Guiart<sup>76</sup> and Vayssiere.<sup>77</sup>

For contrast with these I now offer figures from Sydney material of the small ventral and one of the larger dorso-lateral plates of *P. angasi*. Unfortunately I have no plates of the European form for actual comparison. The likeness to a cocked hat noted by the original authors holds good with our specimens. Angas stated that the gizzard of the Australian form resembles that of the British *P. quadripartita* (= *P. aperta*).<sup>78</sup> It has been generally overlooked that figures of the radula of a Victorian specimen were published by Maplestone.<sup>79</sup>

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<sup>74</sup> Pilsbry—Man. Conch., xvi., 1895, p. 8.

<sup>75</sup> Sars—Moll. Reg. Arct. Norv., 1878, pl. xi. (anat.), fig. 15.

<sup>76</sup> Guiart—Mém. Soc. Zool. France, xiv., 1901, p. 80, figs. 40, 41, 42.

<sup>77</sup> Vayssiere—Ann. Mus. Marseilles, Zool., ii., 1885, p. 33, pl. i., figs. 20, 21.

<sup>78</sup> Angas—Proc. Zool. Soc., 1867, p. 227.

<sup>79</sup> Maplestone—Monthly Micro. Journ., 1872, p. 52, pl. xxvii., fig. 23.